equatoreal telescope of two-foot aperture. Mr. Lassell's experience in re-polishing his four-foot mirror suggested to him some alterations in his polishing machine. After his return he was able to carry out experiments in connection with the suggested alterations in a workshop erected at Maidenhead, and succeeded in constructing an improved form of polishing machine, which is described in the *Philosophical Transactions* for 1874. The numerous papers by Mr. Lassell, to be found in the *Monthly Notices* and the *Memoirs* of the Royal Astronomical Society, bear abundant record to his industry and skill, and make us feel that in Mr. Lassell's death we have to deplore the loss of one who contributed largely to the advancement of the science of his age.

He was elected a Fellow of this Society on June 14, 1839, and received the Gold Medal in 1849 "for the construction of his Equatoreal Instrument and for the discoveries made with it;" the address, in presenting the medal, being delivered by the President, Sir J. F. W. Herschel. He was elected President of the Society in 1870, and, as usual, held the office for two years. He was for many years a member of the Council, and was a most regular attendant at its meetings up to his death.

He was elected a Fellow of the Royal Society in 1849, and received one of the Royal Medals in 1858. Among other honours bestowed upon him, may be mentioned the honorary degree of LL.D. conferred upon him by the University of Cambridge, and the honorary membership of the Royal Societies of Edinburgh and Upsala. W. H.

Rev. Robert Comyn Lumsden was born at Dalkeith, and studied at the University of Edinburgh. He was elected a Fellow of the Royal Geographical Society in 1860, and of this Society on May 10, 1861. He died of apoplexy, after a few hours' illness, on October 25, 1880, aged 56.

Benjamin Peirce was born at Salem, Massachusetts, on April 4, 1809. He was the son of Benjamin Peirce, the librarian of Harvard, who died in 1831, and is well known in connection with his posthumous History of that University. He graduated at Harvard in 1829, and was made Tutor in 1831 and Professor in 1833. In 1842 he was appointed Perkins Professor of Astronomy and Mathematics in the University, and occupied this Chair until his death. He also held the offices of Consulting Astronomer of the American Ephemeris and Nautical Almanac from 1853 to 1867, and Superintendent of the United States Coast Survey from 1867 to 1874. From 1874 to his death he was Consulting Geometer of the Coast Survey. He died at his house at Cambridge, Mass., on October 6, 1880, after an illness of about three months.

The proof sheets of Bowditch's translation of Laplace's *Mécanique Céleste* were read by Peirce. On p. 61 of the Memoir

of Bowditch, prefixed to the fourth volume (1839) of this elaborate work, it is stated that Peirce's "revision of the entire work, when in the process of publication, and vigilance in detecting typographical errors, Dr. Bowditch always valued as an additional means of ensuring its accuracy;" and on p. 140, "Whenever one hundred and twenty pages were printed, Dr. Bowditch had them bound in a pamphlet form, and sent them to Professor Peirce, who in this manner read the work for the first time. He returned the pages with the list of errata, which were then corrected with a pen or otherwise in every copy of the whole edition." The Royal Society's Catalogue of Scientific Papers contains the titles of fifty-nine papers by Peirce, the earliest of which appeared in the *Mathematical Miscellany* for 1838, and related to Fox Talbot's researches upon the Integral Calculus. Many of his papers were published in *Gould's Astronomical Journal* and in the *Proceedings of the American Academy of Boston*. In 1842 the first number appeared of the *Cambridge Miscellany of Mathematics, Physics and Astronomy*, edited by Benjamin Peirce and James Lovering; but only four quarterly numbers were issued. It chiefly contained solutions of problems. About 1845 he published text-books on Trigonometry, Geometry and the Differential Calculus; but his largest work of this kind was his *Analytic Mechanics*, which appeared in 1855, and was dedicated to the memory of "my master in science, Nathaniel Bowditch, the father of American Geometry." The *Mechanics* is a beautifully printed quarto volume, and covers a wide range of subjects; but the mathematics is somewhat embarrassed by the notations employed. The list of subscribers to this work shows the general estimation in which Peirce was held by his countrymen at that time. In 1853 Peirce's *Tables of the Moon* were published. These were described at length in the *Monthly Notices*, vol. xiv. pp. 26–32 (1853). Peirce was the author of memoirs upon the Saturnian system, the lunar theory, the discovery of Neptune, the rejection of doubtful observations in the Method of Least Squares, &c.; and he also published a treatise entitled *Curves, Functions and Forces*. One of the best known of his more recent writings is his *Linear Associative Algebra* (Washington, 1870), an account of which was given by Spottiswoode in vol. iv. p. 152 of the *Proceedings of the London Mathematical Society*. He was one of the founders of the American National Academy of Sciences. In 1853 he presided over the American Association for the Advancement of Science. He was elected an Associate of this Society on April 12, 1850, and a Foreign Member of the Royal Society in 1852. He received the degree of LL.D. in 1847 from the University of North Carolina, and in 1867 from Harvard University.

He leaves a widow, three sons and a daughter. Two of his sons, J. M. Peirce and C. S. Peirce, are well known in science. The former is Professor of Mathematics in Harvard University, and the latter is the author of investigations upon the applica-

tion of algebra to logic, and of photometric researches which were referred to in the Annual Report for 1879 (*Monthly Notices*, xxxix. p. 270).

CHRISTIAN FRIEDRICH AUGUST PETERS was born at Hamburg on September 7, 1806. His father was a merchant, who early remarked the ability of the boy for mathematical studies, and did his utmost to procure the necessary books for him. He attracted the attention of H. C. Schumacher, the director of the Observatory at Altona, who employed young Peters in computing ephemerides for his "Hülfstafeln," and for miscellaneous geodetical work. From the year 1826 Peters was employed under Schumacher's direction in the survey of the territory round Hamburg. Commencing with the same year, we find communications from him in the *Astronomische Nachrichten*, principally containing computations of orbits of comets and of occultations of stars.

Peters took his degree at Königsberg, under the illustrious Bessel; his dissertation bears the title, *Disquisitio de Motu Penduli in Aëre resistente.*

In the year 1834 he was appointed assistant at the Hamburg Observatory, the director being Ch. Rümker, who charged him with the observations with Repsold's Transit. Very few of the observations made by him with this excellent instrument are published.

A few years later W. Struve proposed him as one of the assistants to the director of the Pulkowa Observatory, then about to be finished. The Academy of St. Petersburg elected him to this office on December 15, 1838. He left his employment at Hamburg on October 1, 1839, and entered on October 11 upon his new duties at Pulkowa, where he immediately displayed great activity, jointly with his colleagues, Fuss, Sabler, and O. Struve, under the direction of W. Struve.

In recognition of his eminent services he was elected on February 5, 1842, an associate to the Academy of Sciences at St. Petersburg, and afterwards, on March 6, 1847, he was promoted to the rank of an extraordinary member.

His scientific papers written at that time and published in the volumes of the Academy, the *Recueil des Mémoires des Astronomes de Poulkova*, and the *Astronomische Nachrichten*, directed the attention of the scientific world to the eminent astronomer. He was elected an Associate of this Society on May 12, 1848, and received on February 13, 1852, the gold medal, the president, Professor J. C. Adams, delivering the address upon the occasion.

In the autumn of 1849 Peters returned to Germany, having left the Russian service. He was appointed Professor of Astronomy at the Königsberg University, and had besides secured the right to make use of the celebrated Heliometer of the Observatory. He did not, however, make many observations with this instrument. In his lectures at the University he had among his